

Attorney Docket No. P65141US0
Application No. 09/508,095

Amendments to the claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of claims:

Claims 1-29 (cancelled)

30. (New) A peptide having bifidogenic properties and selected from the group consisting of:

- a) R_1 -EVAARARVW-R₂ (SEQ ID NO: 8),
- b) R_1 -ARRARVVWAAVG-R₂ (SEQ ID NO: 22),
- c) R_1 -ARRARVVWCAVG-R₂ (SEQ ID NO: 14), and
 R_3 -CIAL-R₄ (SEQ ID NO: 15)
- d) R_1 -ARRARVVWCAVGE-R₂ (SEQ ID NO: 16),
 R_3 -CIAL-R₄ (SEQ ID NO: 15)

wherein

R_1 , R_3 independently represent H or a peptide containing up to 100 amino acids; and

R_2 , R_4 independently represent OH, NH₂, or a peptide containing up to 100 amino acids;

- d) amidated, acetylated, sulfated, phosphorylated, glycosylated, and oxidized derivatives and fragments, thereof, having bifidogenic properties; and
- e) peptides obtainable by the combination of the peptides, fragments, and derivatives by chemical bonding.

31. (New) A peptide according to claim 30 selected from the group consisting of SEQ ID NO: 8 and SEQ ID NO: 22.

Attorney Docket No. P65141US0
Application No. 09/508,095

32. (New) A medicament containing at least one peptide according to claim 30.
33. (New) A medicament containing at least one peptide according to claim 31.
34. (New) Use of peptides according to claim 30 for preparing a medicament for the treatment of diseases caused by misplaced microbial colonizations, for example, by bacteria, fungi, yeasts, protists, viruses, mycoplasmas, filariae, plasmodiums, such as infections, inflammations, microbially induced tumors, microbially caused degenerative diseases, diarrheic diseases, colics, deviations in the oral, intestinal and vaginal floras, caries.
35. (New) Use of nucleic acids coding for the peptides mentioned in claim 31 for preparing medicament for the treatment of diseases caused by misplaced microbial colonizations, for example, by bacteria, fungi, yeasts, protists, viruses, mycoplasmas, filariae, plasmodiums, such as infections, inflammations, microbially induced tumors, microbially caused degenerative diseases, diarrheic diseases, colics, deviations in the oral, intestinal, and vaginal floras, caries.
36. (New) A peptide having bifidogenic properties and selected from the group consisting of SEQ ID NO: 14 and SEQ ID NO: 16.
37. (New) A medicament containing at least one peptide according to claim 36.
38. (New) Use of peptides according to claim 36 for preparing a medicament for the treatment of diseases caused by misplaced microbial colonizations, for example, by bacteria, fungi, yeasts, protists, viruses, mycoplasmas, filariae, plasmodiums, such as infections,

Attorney Docket No. P65141US0
Application No. 09/508,095

inflammations, microbially induced tumors, microbially caused degenerative diseases, diarrheic diseases, colics, deviations in the oral, intestinal and vaginal floras, caries.

39. (New) Use of nucleic acids coding for the peptides mentioned in claim 36 for preparing a medicament for the treatment of diseases caused by misplaced microbial colonizations, for example, by bacteria, fungi, yeasts, protists, viruses, mycoplasmas, filariae, plasmodiums, such as infections, inflammations, microbially induced tumors, microbially caused degenerative diseases, diarrheic diseases, colics, deviations in the oral, intestinal, and vaginal floras, caries.

40. (New) A peptide having bifidogenic properties and

a) amino acid sequence

R₁-EQLLRLKK-R₂ (SEQ ID NO: 1), R₁-YLEQLLRLKKY-R₂ (SEQ ID NO: 2),
R₁-NRQRNILR-R₂ (SEQ ID NO: 3), R₁-YMGNGMNRQRNILR-R (SEQ ID NO: 4),
R₁-FQWQRNMRK-R₂ (SEQ ID NO: 5), R₁-HTGLRRTA-R₂ (SEQ ID NO: 6),
R₁-FTAIQNLRK-R₂ (SEQ ID NO: 7), R₁-EVAARARVWW-R₂ (SEQ ID NO: 8),
R₁-WQRNMRKV-R₂ (SEQ ID NO: 9), R₁-LARTLKRLK-R₂ (SEQ ID NO: 10),
R₁-YKQKVEKV-R₂ (SEQ ID NO: 11), R₁-LVRYTKKV-R₂ (SEQ ID NO: 12),
R₁-KYLYEIARR-R₂ (SEQ ID NO: 13), R₁-ARRARVWWCAVG-R₂ (SEQ ID NO: 14),
R₂-CIAL-R₄ (SEQ ID NO: 15)
R₁-ARRARVWWCAVGE-R₂ (SEQ ID NO: 16),
R₂-CIAL-R₄ (SEQ ID NO: 15)
R₁-GRRRRSVQWCIVSQPEATKCFQWQRNMRVRGPPVSCIKRDSPICQIA-R₂
(SEQ ID NO: 18),

Attorney Docket No. P65141US0
Application No. 09/508,095

R₁-GRRRSVQWCAVSQPEATKCFQWQRNMRKVRGPPVSCIKRDSPICQIA-R₂

(SEQ ID NO: 19),

R₁-GRRRSVQWCAVSQPEATKCFQWQRNMRKVRGPPVSCIKRDSPICQIA-R₂

(SEQ ID NO: 20),

R₁-VYQHQKAMPKPKWIKQPKTKVIVPYVRYL-R₂ (SEQ ID NO: 21),

R₁-ARRARVVWAAVG-R₂ (SEQ ID NO: 22),

R₁-CAVGGGCIAL-R₂ (SEQ ID NO: 23), or

R₁-RHTRKYWCRCQGARGGCITL-R₂ (SEQ ID NO: 24),

wherein

R₁, R₃ independently represents NH₂, an amino acid, or a peptide containing up to 100 amino acids, and

R₂, R₄ independently represents COOH, CONH₂, an amino acid, or a peptide containing up to 100 amino acids;

b) amino acid sequence

R₁-YQRRPAIAINNPYVPRTYYANPAVVRPHAQIPQRQYLPNSHPPTVVRRPNLHPSF-R₂ (SEQ ID NO: 17),

wherein

R₁, R₃ independently represents H or a peptide containing up to 100 amino acids excluding amino acid sequence 1-62 of human κ -casein, and

R₂, R₄ independently represents OH, NH₂, or a peptide containing up to 100 amino acids excluding amino acid sequence 1-62 of human κ -casein; or

Attorney Docket No. P65141US0
Application No. 09/508,095

c) the peptide N-modified by amidation, acetylation, sulfation, phosphorylation, glycosylation, or oxidation having bifidogenic properties.

41. (New) A peptide having bifidogenic properties and amino acid sequence

- a) (SEQ ID NO: 8),
- b) (SEQ ID NO: 14),
- c) (SEQ ID NO: 22), or
- d) $R_1\text{-ARRARVVWCAVG-}R_2$ (SEQ ID NO: 14), and
$$R_3\text{-CIAL-}R_4$$
 (SEQ ID NO: 15)

wherein

R_1 , R_3 independently represent H or a peptide containing up to 100 amino acids; and

R_2 , R_4 independently represent OH, NH₂, or a peptide containing up to 100 amino acids;

- e) or the amidated, acetylated, sulfated, phosphorylated, glycosylated, oxidized derivatives or fragments, thereof, having bifidogenic properties.

42. (New) A method of using the peptide of claim 40, comprising orally administering an effective amount of the peptide to an individual to selectively promote growth of bifidobacteria, or selectively inhibit the growth of non-bifidobacteria, in the digestive tract.

43. (New) A method of using the peptide of claim 41, comprising orally administering an effective amount of the peptide to an individual to selectively promote growth of bifidobacteria, or selectively inhibit the growth of non-bifidobacteria, in the digestive tract.

Attorney Docket No. P65141US0
Application No. 09/508,095

44. (New) A composition for human administration comprising the peptide of claim 40 in combination with a physiologically acceptable excipient in a galenic formulation.

45. (New) A composition for human administration comprising the peptide of claim 41 in combination with a physiologically acceptable excipient in a galenic formulation.